

SEP 25 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Andrew Harvey Barr, et al.

Examiner: Jeremy C. Norris

Serial No.: 10/621,661

Group Art Unit: 2841

Filed: July 17, 2003

Docket: 200308575-1

Title: PARTIALLY VOIDED ANTI-PADS

CERTIFICATE OF TELEFACSIMILE TRANSMISSION

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I certify that the following papers are being transmitted via telefacsimile and addressed to the U.S. Patent and Trademark Office on the date shown below:

1. Transmittal of Appeal Brief (1 pg.).
2. Appeal Brief (20 pgs.).

Respectfully submitted,

Andrew Harvey Barr, et al.,

By their attorneys,

DICKE, BILLIG & CZAJA, PLLC
Fifth Street Towers, Suite 2250
100 South Fifth Street
Minneapolis, MN 55402
Telephone: (612) 573-2003
Facsimile: (612) 573-2005

Date: 9-25-06

By:


Patrick G. Billig
Reg. No. 38,080**22 PAGES - INCLUDING COVER PAGE**

RECEIVED
CENTRAL FAX CENTER

SEP 25 2006

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 200308575-1

IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Andrew Harvey Barr, et al.

Confirmation No.: 2058

Application No.: 10/621,661

Examiner: Jeremy C. Norris

Filing Date: July 17, 2003

Group Art Unit: 2841

Title: PARTIALLY VOIDED ANTI-PADS

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEFTransmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on July 24, 2006.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) \$500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

 (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

<input type="checkbox"/> 1st Month \$120	<input type="checkbox"/> 2nd Month \$450	<input type="checkbox"/> 3rd Month \$1020	<input type="checkbox"/> 4th Month \$1590
---	---	--	--

 The extension fee has already been filed in this application. (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of \$ 500. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.26. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Commissioner for Patents, Alexandria, VA 22313-1450

Date of Deposit:

OR

I hereby certify that this paper is being transmitted to the Patent and Trademark Office facsimile number (571)273-6360.

Date of facsimile: September 25, 2006

Typed Name: Patrick G. BilligSignature: PGB

Respectfully submitted,

Andrew Harvey Barr, et al.

By

PGB
Patrick G. Billig

Attorney/Agent for Applicant(s)

Reg No. : 38,080

Date : September 25, 2006

Telephone : 612 573-2003

SEP 25 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: Andrew Harvey Barr, et al. Examiner: Jeremy C. Norris
 Serial No.: 10/621,661 Group Art Unit: 2841
 Filed: July 7, 2003 Docket No.: 200308575-1
 Due Date: September 24, 2006
 Title: PARTIALLY VOIDED ANTI-PADS

APPEAL BRIEF UNDER 37 C.F.R. §41.37

Mail Stop Appeal Brief – Patents
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

Dear Sir/Madam:

This Appeal Brief is submitted in support of the Notice of Appeal filed on July 24, 2006, appealing the final rejection of claims 1-6 and 9-37 of the above-identified application as set forth in the Final Office Action mailed February 22, 2006.

The U.S. Patent and Trademark Office is hereby authorized to charge Deposit Account No. 08-2025 in the amount of \$500.00 for filing a Brief in Support of an Appeal as set forth under 37 C.F.R. §41.20(b)(2). At any time during the pendency of this application, please charge any required fees or credit any overpayment to Deposit Account No. 08-2025.

Appellants respectfully request consideration and reversal of the Examiner's rejection of pending claims 1-6 and 9-37.

09/26/2006 TL0111 00000060 082025 10621661
 01 FC:1402 500.00 DA

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 200308575-1
Title: PARTIALLY VOIDED ANTI-PADS

RECEIVED
CENTRAL FAX CENTER
SEP 25 2006

TABLE OF CONTENTS

Real Party in Interest.....	3
Related Appeals and Interferences.....	3
Status of Claims	3
Status of Amendments	3
Summary of The Claimed Subject Matter	3
Grounds of Rejection to be Reviewed on Appeal.....	5
Argument	5
Conclusion	13
Claims Appendix	14
Evidence Appendix.....	19
Related Proceedings Appendix	20

SEP 25 2006

Appeal Brief to the Board of Patent Appeals and Interferences
 Applicant: Andrew Harvey Barr, et al.
 Serial No.: 10/621,661
 Filed: July 17, 2003
 Docket No.: 20030857-5-1
 Title: PARTIALLY VOIDED ANTI-PADS

REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, LP having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant that will have a bearing on the Board's decision in the present Appeal.

STATUS OF CLAIMS

In a Final Office Action mailed February 22, 2006, claims 1-6 and 9-37 were finally rejected. Claims 1-6 and 9-37 are pending in the application, and are the subject of the present Appeal.

STATUS OF AMENDMENTS

No amendments have been entered subsequent to the Final Office Action mailed February 22, 2006. A Response After Final was filed on June 9, 2006, but no amendments to the claims were proposed by Appellants or entered by the Examiner.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The subject matter of the independent claims involved in the Appeal is related to printed circuit boards including partially voided anti-pads.

One aspect of the present invention, as claimed in independent claim 1, provides a printed circuit board. The printed circuit board includes a conductive layer (20), a via (10) transecting the conductive layer (20), and an anti-pad (220, 300) around the via (10). The anti-pad (220, 300) comprises a pattern of conductive material (200) having a plurality of voids (210). The pattern of conductive material (200) is electrically isolated. See *Specification*, page 5, line 30 – page 7, line 25; and Figures 4 and 5.

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 200308575-1
Title: PARTIALLY VOIDED ANTI-PADS

One aspect of the present invention, as claimed in independent claim 17, provides a printed circuit board. The printed circuit board includes a conductive plane (20), a via signal barrel (10) transecting the conductive plane (20), and an anti-pad (220, 300) between the conductive plane (20) and the via signal barrel (10). The anti-pad (220, 300) has a pattern of conductive material (200). A signal can not be transmitted between the conductive plane (20) and the via signal barrel (10). The pattern of conductive material (200) is electrically isolated. *See Specification*, page 5, line 30 – page 7, line 25; and Figures 4 and 5.

One aspect of the present invention, as claimed in independent claim 24, provides a method for forming a printed circuit board. The method includes forming a conductive plane (20), forming a via signal barrel (10) transecting the conductive plane (20), and forming a partially voided anti-pad (220, 300) between the conductive plane (20) and the via signal barrel (10). The partially voided anti-pad (220, 300) is electrically isolated. *See Specification*, page 5, line 30 – page 7, line 25; and Figures 4 and 5.

One aspect of the present invention, as claimed in independent claim 35, provides a printed circuit board. The printed circuit board includes a conductive layer (20), a via (10) transecting the conductive layer (20), and an anti-pad (220, 300) around the via (10). The anti-pad (220, 300) comprises a pattern of conductive material (200) having a plurality of voids (210). The pattern comprises an asymmetric pattern. *See Specification*, page 5, line 30 – page 7, line 25; and Figures 4 and 5.

One aspect of the present invention, as claimed in independent claim 36, provides a printed circuit board. The printed circuit board includes a conductive layer (20), a via (10) transecting the conductive layer (20), and an anti-pad (220, 300) around the via (10). The anti-pad (220, 300) comprises a pattern of conductive material (200) having a plurality of voids (210). The pattern comprises a concentric circles pattern. *See Specification*, page 5, line 30 – page 7, line 25; and Figures 4 and 5.

One aspect of the present invention, as claimed in independent claim 37, provides a printed circuit board. The printed circuit board includes a conductive layer (20), a via (10) transecting the conductive layer (20), and an anti-pad (220, 300) around the via (10). The anti-pad (220, 300) comprises a pattern of conductive material (200) having a plurality of voids (210). The pattern comprises a screen pattern. *See Specification*, page 5, line 30 – page 7, line 25; and Figures 4 and 5.

Appeal Brief to the Board of Patent Appeals and Interferences
 Applicant: Andrew Harvey Barr, et al.
 Serial No.: 10/621,661
 Filed: July 17, 2003
 Docket No.: 200308575-1
 Title: PARTIALLY VOIDED ANTI-PADS

RECEIVED
 CENTRAL FAX CENTER
 SEP 25 2006

GROUNDΣ OF REJECTION TO BE REVIEWED ON APPEAL

- I. Whether claims 1-6, 9-12, 15, 17-22, 24-27, 30, and 32-34 are patentable under 35 U.S.C. § 102(e) over the Albinsson U.S. Patent No. 6,501,181.
- II. Whether claims 35-37 are patentable under 35 U.S.C. § 102(e) over the Oggioni et al. U.S. Patent No. 6,710,258.
- III. Whether claims 13, 14, 16, and 31 are patentable under 35 U.S.C. § 103(a) over the Albinsson U.S. Patent No. 6,501,181.
- IV. Whether claim 23 is patentable under 35 U.S.C. § 103(a) over the combination of the Albinsson U.S. Patent No. 6,501,181 and the Oggioni et al. U.S. Patent No. 6,710,258.
- V. Whether claims 28 and 29 are patentable under 35 U.S.C. § 103(a) over the combination of the Albinsson U.S. Patent No. 6,501,181 and the Murray et al. U.S. Patent No. 5,844,146.

ARGUMENT

I. The Applicable Law

With regard to a 35 U.S.C. § 102(e)-anticipation rejection: "A person shall be entitled to a patent unless – (e) the invention was described in – (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English Language. 35 U.S.C. § 102(e)(2005).

A rejection based on 35 U.S.C. § 102(e) can be overcome by: persuasively arguing that the claims are patentably distinguishable from the prior art; or, amending the claims to patentably distinguish over the prior art. M.P.E.P. § 706.02(b).

With regard to a 35 U.S.C. § 103 obviousness rejection: "Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case." M.P.E.P. 2141 (emphasis in

Appeal Brief to the Board of Patent Appeals and Interferences
 Applicant: Andrew Harvey Barr, et al.
 Serial No.: 10/621,661
 Filed: July 17, 2003
 Docket No.: 200308575-1
 Title: PARTIALLY VOIDED ANTI-PADS

the original). The Examiner bears the burden under 35 U.S.C. § 103 in establishing a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Three criteria must be satisfied to establish a *prima facie* case of obviousness. First, the Examiner must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would teach, suggest, or motivate one to modify a reference or to combine the teachings of multiple references. *In re Fine* at 1074. Second, the prior art can be modified or combined only so long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375, 379 (Fed. Cir. 1986). Third, the reference or combined references must teach or suggest all of the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (C.C.P.A. 1974).

The court in *Fine* stated:

Obviousness is tested by "what the combined teaching of the references would have suggested to those of ordinary skill in the art." But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." And "teachings of references can be combined *only* if there is some suggestion or incentive to do so."

In re Fine, 5 USPQ2d at 1599 (citations omitted).

There must be some teaching somewhere that provides the suggestion or motivation to combine prior art teachings and applies that combination to solve the same or similar problem that it addresses. *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988); *In re Wood*, 599 F.2d 1032, 1037, 202 USPQ 171, 174 (C.C.P.A. 1979). In particular, "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must *both* be found in the prior art, and not based upon applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142 (emphasis added).

The test for obviousness under § 103 must take into consideration the invention as a whole; that is, one must consider the particular problem solved by the combination of elements that define the invention. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985). Furthermore, claims must be interpreted in light of the specification, claim language, other claims, and prosecution history. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987), *cert.*

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 200308575-1
Title: PARTIALLY VOIDED ANTI-PADS

denied, 481 U.S. 1052 (1987). At the same time, a prior patent cited as a § 103 reference must be considered in its entirety, “*i.e. as a whole*, including portions that lead away from the invention.” *Id.* That is, the Examiner must recognize and consider not only the similarities, but also the critical differences between the claimed invention and the prior art as one of the factual inquiries pertinent to any obviousness inquiry under 35 U.S.C. § 103. *In re Bond*, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990) (emphasis added). Finally, the Examiner must avoid hindsight. *Id.*

With regard for the test for obviousness under § 103, a statement that modifications of the prior art to meet the claimed invention would have been “well within the ordinary skill of the art at the time the claimed invention was made” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993); M.P.E.P. § 2143.01 (emphasis in the original).

In conclusion, an applicant is entitled to a patent grant if any one of the elements of a *prima facie* case of obviousness is not established. The Federal Circuit has endorsed this view in stating: “If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent.” *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1448 (Fed. Cir. 1992).

II. Rejection of claims 1-6, 9-12, 15, 17-22, 24-27, 30, and 32-34 under 35 U.S.C. § 102(e) as being unpatentable over Albinsson U.S. Patent No. 6,501,181.

Independent claims 1, 17, and 24 are patentably distinct from the Albinsson Patent.

Independent claim 1 recites a via transecting the conductive layer and an anti-pad around the via, the anti-pad comprising a pattern of conductive material having a plurality of voids. Independent claim 17 recites a via signal barrel transecting the conductive plane, and an anti-pad between the conductive plane and the via signal barrel, the anti-pad having a pattern of conductive material, wherein a signal can not be transmitted between the conductive plane and the via signal barrel. Independent claim 24 recites forming a via signal barrel transecting the conductive plane and forming a partially voided anti-pad between the conductive plane and the via signal barrel.

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 200308575-1
Title: PARTIALLY VOIDED ANTI-PADS

The Albinsson Patent discloses a compensating arrangement for a transition between two transmission lines. The transmission line involves a planar signal conductor 401, to which a signal via conductor 405 is connected. A compensating planar conductor 404 is printed on the same substrate as and close to the planar ground conductor 402. The compensating planar conductor 404 is printed in the vicinity of the area where the signal via 405 intersects the plane in which the planar ground conductor 402 and the compensating planar conductor 404 extend. The planar ground conductor 402 and the compensating planar conductor 404 are non-intersecting, there is a minimum distance between their edges which is larger than zero, but smaller than the diameter of a via hole. (Col. 6, lines 4-19).

The Examiner submits that planar ground conductor 402 of Figure 4b of the Albinsson Patent discloses the conductive layer of independent claims 1, 17, and 24. The Examiner also submits that via 405 of Figure 4b discloses the via transecting the conductor. (Final Office Action mailed February 22, 2006, page 2). The Examiner submits that via 405 intersects the ground plane. (Advisory Action mailed August 8, 2006, page 2). Via 405, however, does not transect planar ground conductor 402 but rather is connected to signal conductor 401. (Col. 6, lines 6-8). In addition, while via 405 intersects the *plane* in which the planar ground conductor 402 extends, Figure 4b and the Examiner cited text of the Albinsson Patent fail to disclose the via 405 transecting *the planar ground conductor 402*. (Col. 6, lines 14-16). In Figure 4b of the Albinsson Patent, via 405 extends on the side of the planar ground conductor 402 and does not pass through the planar ground conductor 402. Therefore, the Albinsson Patent fails to disclose a via transecting the conductive layer as recited in claim 1, a via signal barrel transecting a conductive plane as recited in claim 17, and forming a via signal barrel transecting the conductive plane as recited in independent claim 24.

The Examiner also submits that the anti-pad of claims 1, 17, and 24 is disclosed by compensating planar conductor 404. (Final Office Action mailed February 22, 2006, page 2). The Examiner submits that conductor 404 in conjunction with the illustrated spaces, does 'create a void between the via and the conductive plane (402) to prevent shorts between the vias and the conductive planes through which vias may pass.' (Advisory Action mailed August 8, 2006, page 2). Compensating planar conductor 404 is not an anti-pad. An anti-pad is defined in the specification as: "[w]hen vias pass through a power or ground plane, the

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 200308575-1
Title: PARTIALLY VOIDED ANTI-PADS

conducting material around the via on the power or ground plane is removed to prevent a short between the via and the power or ground plane. The area that is removed creates a void called an anti-pad." (Specification at page 1, lines 13-16). "Anti-pads are employed to create a void between the via and the conductive plane to prevent shorts between the vias and conductive planes through which vias may pass." (Specification at page 4, lines 13-15). In contrast, compensating planar conductor 404 does not create a void between via 405 and the planar signal conductor 401, which it transects, since via 405 is electrically coupled to the planar signal conductor 401. In addition, as discussed above, via 405 does not transect the planar ground conductor 402. Therefore, compensating planar conductor 404 cannot be considered an anti-pad.

In view of the above, Appellants respectfully submit that independent claims 1, 17, and 24 are patentably distinct from the Albinsson Patent. Dependent claims 2-6, 9-12, 15, 18-22, 25-27, 30, and 32-34 respectively further define patentably distinct independent claim 1, 17, or 24. Accordingly, these dependent claims are also believed to be allowable over the Albinsson Patent. Appellants respectfully request reversal of the rejection of claims 1-6, 9-12, 15, 17-22, 24-27, 30, and 32-34 under 35 U.S.C. § 102(e).

III. Rejection of claims 35-37 under 35 U.S.C. § 102(e) as being unpatentable over the Oggioni et al. U.S. Patent No. 6,710,258.

Independent claims 35-37 are patentably distinct from the Oggioni et al. Patent.

Independent claim 35 recites **wherein the pattern comprises an asymmetric pattern.**

The Oggioni et al. Patent discloses that it is not necessary that the rings are completely closed around the via-hole and that the rings may be comprised of square or other polygonal shaped frames rather than cylindrical. (Col. 6, lines 6-9). The Oggioni et al. Patent also discloses that the arrangement of the via-hole at the center of the rings ensures that no asymmetry is introduced. (Col. 5, lines 49-51). The Oggioni et al. Patent teaches away from asymmetry and does not teach or suggest a pattern that comprises an asymmetric pattern. In the Response to Arguments, the Examiner states that a "break in the ring would indeed teach and suggest a pattern that is asymmetric." (Final Office Action mailed February 22, 2006, page 8). While the Oggioni et al. patent specifically states that the rings do not

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 20030857:i-1
Title: PARTIALLY VOIDED ANTI-PADS

have to be completely closed around the via hole, that does not mean that asymmetry would be introduced by including openings around the rings. The openings could be placed such that the rings are symmetric and the Oggioni et al. Patent teaches that the pattern should be symmetric.

In view of the above, Appellants respectfully submit that independent claim 35 is patentably distinct from the Oggioni et al. Patent. Appellants respectfully request reversal of the rejection of claim 35 under 35 U.S.C. § 102(e).

Independent claim 36 recites an anti-pad around the via, the anti-pad comprising a pattern of conductive material having a plurality of voids, wherein the pattern comprises a concentric circles pattern.

While the Oggioni et al. Patent discloses single rings, the Oggioni et al. Patent is silent with regard to the pattern comprising a concentric circles pattern. In the Response to Arguments, the Examiner states that “the pattern of material and voids includes the conductive circular ring and the concentric circular voids as well.” (Final Office Action mailed February 22, 2006, page 8). The pattern that comprises concentric circles, however, is formed of conductive material and does not include the voids. Therefore, the Oggioni et al. Patent does not disclose a concentric circles pattern.

In view of the above, Appellants respectfully submit that independent claim 36 is patentably distinct from the Oggioni et al. Patent. Appellants respectfully request reversal of the rejection of claim 36 under 35 U.S.C. § 102(e).

Independent claim 37 recites wherein the pattern comprises a screen pattern.

In the Response to Arguments, the Examiner states that “neither Applicants nor Oggioni have provided any special meaning to the words ‘screen’ and ‘mesh.’ Therefore, the Examiner is required to give the words their plain meaning. In plain usage, the words ‘screen’ and ‘mesh’ are interchangeable. Thus, since Oggioni explicitly discloses a ‘mesh’ it is clear that Oggioni discloses a screen pattern.” (Final Office Action mailed February 22, 2006, page 8). The Examiner states that the Examiner reverts to the plain meaning of “screen” and “mesh” since Applicant has not stated what exactly is structurally different between the disclosed “mesh” and the claimed “screen pattern.” (Advisory Action mailed August 8, 2006, page 2). While the Oggioni et al. Patent uses the term “mesh” to describe the

Appeal Brief to the Board of Patent Appeals and Interferences

Applicant: Andrew Harvey Barr, et al.

Serial No.: 10/621,661

Filed: July 17, 2003

Docket No.: 20030857:-1

Title: PARTIALLY VOIDED ANTI-PADS

shielding structure, it is clear that the use of the term is not referring to a screen pattern. The Oggioni et al. Patent is silent with respect to the pattern comprising a screen pattern.

The Oggioni et al. Patent discloses that the circuitized substrate further includes, for each via-hole, one or more shielding tracks connectable to a reference voltage. Each shielding track is formed in a corresponding intermediate conductive layer and substantially surrounds the via-hole. The device solution thus provides a mesh shielding of the via-hole, which acts as a coaxial structure. (Col. 5, lines 28-34). Preferably, the rings are formed in each inner conductive layer, so that these rings are as close as possible to each other. This results in a very low pitch of the mesh structure around the via-hole, which provides a good shielding for signals with a very high frequency. (Col. 5, lines 51-57). The text of the Oggioni et al. Patent does not disclose anti-pads having a screen pattern, but rather describes the shielding structure as a mesh. The mesh shielding structure is provided by the rings in the Oggioni et al. Patent as illustrated in Figure 2b. (Col. 5, lines 51-57).

In view of the above, Appellants respectfully submit that independent claim 37 is patentably distinct from the Oggioni et al. Patent. Appellants respectfully request reversal of the rejection of claim 37 under 35 U.S.C. § 102(e).

IV. Rejection of claims 13, 14, 16, and 31 under 35 U.S.C. § 103(a) as being unpatentable over the Albinsson U.S. Patent No. 6,501,181.

The Albinsson Patent fails to render claims 13, 14, 16, and 31 *prima facie* obvious.

Dependent claims 13, 14, 16, and 31 respectively further define patentably distinct independent claim 1 or 24, which as discussed above in Section II Appellants believe are allowable over the Albinsson Patent. Accordingly, these dependent claims are also believed to be allowable over the Albinsson Patent.

In addition, claim 13 recites **wherein the pattern comprises a concentric circles pattern**. Claim 14 recites **wherein the pattern comprises a radial spokes pattern**. Claim 16 and claim 31, which depends from claim 28, recite **wherein the pattern comprises a screen pattern**.

The Examiner has taken official notice that it is well-known in the art to comprise conductor patterns in each of these shapes. Appellants contend that these are not well-known facts that are capable of instant and unquestionable demonstration as being well-known. In

Appeal Brief to the Board of Patent Appeals and Interferences

Applicant: Andrew Harvey Barr, et al.

Serial No.: 10/621,661

Filed: July 17, 2003

Docket No.: 200308575-1

Title: PARTIALLY VOIDED ANTI-PADS

the Response to the Final Office Action mailed February 22, 2006, Appellants requested that the Examiner pursuant to M.P.E.P. § 2144.03 cite a reference to teach these limitations. (Response transmitted June 9, 2006, page 10). The Examiner has not cited a reference to teach these limitations.

In view of the above, Appellants respectfully request reversal of the rejection of claims 13, 14, 16, and 31 under 35 U.S.C. § 103(a).

V. Rejection of claim 23 under 35 U.S.C. § 103(a) as being unpatentable over the combination of the Albinsson U.S. Patent No. 6,501,181 and the Oggioni et al. U.S. Patent No. 6,710,258.

The combination of the Albinsson Patent and the Oggioni et al. Patent fail to render claim 23 *prima facie* obvious.

Dependent claim 23 further defines patentably distinct independent claim 17, which as discussed above in Section II Appellants believe is allowable over the Albinsson Patent. Accordingly, this dependent claim is also believed to be allowable over the cited references. Appellants respectfully request reversal of the rejection of claim 23 under 35 U.S.C. § 103(a).

VI. Rejection of claims 28 and 29 under 35 U.S.C. § 103(a) as being unpatentable over the combination of the Albinsson U.S. Patent No. 6,501,181 and the Murray et al. U.S. Patent No. 5,844,146.

The combination of the Albinsson Patent and the Muray et al. Patent fail to render claims 28 and 29 *prima facie* obvious.

Dependent claims 28 and 29 further define patentably distinct independent claim 24, which as discussed above in Section II Appellants believe is allowable over the Albinsson Patent. Accordingly, these dependent claims are also believed to be allowable over the cited references. Appellants respectfully request reversal of the rejection of claims 28 and 29 under 35 U.S.C. § 103(a).

Appeal Brief to the Board of Patent Appeals and Interferences
 Applicant: Andrew Harvey Barr, et al.
 Serial No.: 10/621,661
 Filed: July 17, 2003
 Docket No.: 20030857-1
 Title: PARTIALLY VOIDED ANTI-PADS

RECEIVED
 CENTRAL FAX CENTER
 SEP 25 2006

CONCLUSION

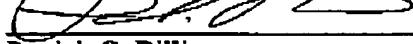
For the above reasons, Appellants respectfully submit that the cited references neither anticipate nor render obvious claims of the pending Application. The pending claims distinguish over the cited references, and therefore, Appellants respectfully submit that the rejections must be withdrawn, and respectfully request the Examiner be reversed and claims 1-6 and 9-37 be allowed.

Any inquiry regarding this Appeal Brief should be directed to either Patrick G. Billig at Telephone No. (612) 573-2003, Facsimile No. (612) 573-2005 or David Plettner at Telephone No. (408) 447-3013, Facsimile No. (408) 447-0854. In addition, all correspondence should continue to be directed to the following address:

IP Administration
 Legal Department, M/S 35
 HEWLETT-PACKARD COMPANY
 P.O. Box 271400
 Fort Collins, Colorado 80527-2400

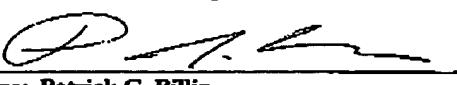
Respectfully submitted,
 Andrew Harvey Barr, et al,
 By their attorneys,
 DICKE, BILLIG & CZAJA, PLLC
 Fifth Street Towers, Suite 2250
 100 South Fifth Street
 Minneapolis, MN 55402
 Telephone: (612) 573-2003
 Facsimile: (612) 573-2005

Dated: 9-25-06
 PGB:kmh


 Patrick G. Billig
 Reg. No. 38,080

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being transmitted via telefacsimile to Fax No. (571) 273-8300 on this 25th day of September, 2006.

By: 
 Name: Patrick G. Billig

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 200308575-1
Title: PARTIALLY VOIDED ANTI-PADS

RECEIVED
CENTRAL FAX CENTER

SEP 25 2006

CLAIMS APPENDIX

1. (Previously presented) A printed circuit board comprising:
 - a conductive layer;
 - a via transecting the conductive layer; and
 - an anti-pad around the via, the anti-pad comprising a pattern of conductive material having a plurality of voids,
wherein the pattern of conductive material is electrically isolated.
2. (Original) The printed circuit board of claim 1, wherein the pattern of conductive material is configured to maintain planarity of the printed circuit board.
3. (Original) The printed circuit board of claim 1, wherein the pattern of conductive material is configured to prevent settling of dielectric material in the printed circuit board near the via.
4. (Original) The printed circuit board of claim 1, wherein the via is configured for data transfer rates greater than approximately 2 GHz.
5. (Original) The printed circuit board of claim 1, wherein the pattern of conductive material is configured for data transfer rates through the via greater than approximately 2 GHz.
6. (Original) The printed circuit board of claim 1, wherein the pattern of conductive material is substantially circular in shape.
7. (Cancelled)
8. (Cancelled)

Appeal Brief to the Board of Patent Appeals and Interferences**Applicant:** Andrew Harvey Barr, et al.**Serial No.:** 10/621,661**Filed:** July 17, 2003**Docket No.:** 200308575-1**Title:** PARTIALLY VOIDED ANTI-PADS

9. (Original) The printed circuit board of claim 1, wherein the conductive layer comprises a power plane.

10. (Original) The printed circuit board of claim 1, wherein the conductive layer comprises a ground plane.

11. (Original) The printed circuit board of claim 1, wherein the pattern comprises a symmetric pattern.

12. (Original) The printed circuit board of claim 1, wherein the pattern comprises an asymmetric pattern.

13. (Original) The printed circuit board of claim 1, wherein the pattern comprises a concentric circles pattern.

14. (Original) The printed circuit board of claim 1, wherein the pattern comprises a radial spokes pattern.

15. (Original) The printed circuit board of claim 1, wherein the pattern comprises an arbitrary pattern.

16. (Original) The printed circuit board of claim 1, wherein the pattern comprises a screen pattern.

17. (Previously presented) A printed circuit board comprising:

 a conductive plane;
 a via signal barrel transecting the conductive plane; and
 an anti-pad between the conductive plane and the via signal barrel, the anti-pad having a pattern of conductive material, wherein a signal can not be transmitted between the conductive plane and the via signal barrel, and

Appeal Brief to the Board of Patent Appeals and Interferences

Applicant: Andrew Harvey Barr, et al.

Serial No.: 10/621,661

Filed: July 17, 2003

Docket No.: 200308575-1

Title: PARTIALLY VOIDED ANTI-PADS

wherein the pattern of conductive material is electrically isolated.

18. (Original) The printed circuit board of claim 17, wherein the pattern of conductive material includes a plurality of voids.

19. (Original) The printed circuit board of claim 17, wherein the anti-pad is configured to maintain planarity of the printed circuit board.

20. (Original) The printed circuit board of claim 17, wherein the anti-pad is configured to minimize stray capacitance between the via and the conductive plane.

21. (Original) The printed circuit board of claim 17, wherein the anti-pad is configured to prevent settling of dielectric material in the printed circuit board adjacent the via signal barrel.

22. (Original) The printed circuit board of claim 17, wherein the conductive plane comprises one of a power plane and a ground plane.

23. (Original) The printed circuit board of claim 17, wherein the conductive plane comprises copper.

24. (Previously presented) A method for forming a printed circuit board, comprising:
 forming a conductive plane;
 forming a via signal barrel transecting the conductive plane; and
 forming a partially voided anti-pad between the conductive plane and the via signal barrel, wherein the partially voided anti-pad is electrically isolated.

25. (Original) The method of claim 24, wherein the conductive plane comprises one of a power plane and a ground plane.

Appeal Brief to the Board of Patent Appeals and Interferences

Applicant: Andrew Harvey Barr, et al.

Serial No.: 10/621,661

Filed: July 17, 2003

Docket No.: 200308575-1

Title: PARTIALLY VOIDED ANTI-PADS

26. (Original) The method of claim 24, wherein the partially voided anti-pad is formed to maintain the planarity of the printed circuit board.

27. (Original) The method of claim 24, wherein the partially voided anti-pad is formed to minimize stray capacitance between the via and the conductive plane.

28. (Original) The method of claim 24, wherein the partially voided anti-pad is formed by removing conductive material from the conductive plane in a pattern.

29. (Original) The method of claim 28, wherein removing conductive material is performed by using an etching process.

30. (Original) The method of claim 28, wherein the pattern comprises one of a symmetric pattern and an asymmetric pattern.

31. (Original) The method of claim 28, wherein the pattern comprises a screen pattern.

32. (Original) The method of claim 28, wherein the pattern comprises one of an arbitrary pattern and a random pattern.

33. (Original) The method of claim 24, wherein the anti-pad is substantially circular in shape.

34. (Original) The method of claim 24, wherein the via signal barrel is substantially circular in shape.

35. (Previously presented) A printed circuit board comprising:
a conductive layer;
a via transecting the conductive layer; and
an anti-pad around the via, the anti-pad comprising a pattern of conductive material having a plurality of voids,

Appeal Brief to the Board of Patent Appeals and Interferences

Applicant: Andrew Harvey Barr, et al.

Serial No.: 10/621,661

Filed: July 17, 2003

Docket No.: 20030857:-1

Title: PARTIALLY VOIDED ANTI-PADS

wherein the pattern comprises an asymmetric pattern.

36. (Previously presented) A printed circuit board comprising:

a conductive layer;

a via transecting the conductive layer; and

an anti-pad around the via, the anti-pad comprising a pattern of conductive material having a plurality of voids,

wherein the pattern comprises a concentric circles pattern.

37. (Previously presented) A printed circuit board comprising:

a conductive layer;

a via transecting the conductive layer; and

an anti-pad around the via, the anti-pad comprising a pattern of conductive material having a plurality of voids,

wherein the pattern comprises a screen pattern.

Appeal Brief to the Board of Patent Appeals and Interferences

Applicant: Andrew Harvey Barr, et al.

Serial No.: 10/621,661

Filed: July 17, 2003

Docket No.: 200308575-1

Title: PARTIALLY VOIDED ANTI-PADS

RECEIVED
CENTRAL FAX CENTER

SEP 25 2008

EVIDENCE APPENDIX

None.

RECEIVED
CENTRAL FAX CENTER

Appeal Brief to the Board of Patent Appeals and Interferences
Applicant: Andrew Harvey Barr, et al.
Serial No.: 10/621,661
Filed: July 17, 2003
Docket No.: 200308575-1
Title: PARTIALLY VOIDED ANTI-PADS

SEP 25 2006

RELATED PROCEEDINGS APPENDIX

None.